

# summary

## Asian Urban Disaster Mitigation Program AUDMP Program Description and Accomplishments

### Overview

Asia is the most disaster-prone region of the world, where loss of life and property from natural hazards is very high, hindering sustainable, broad-based development. As population and economic activity concentrate in rapidly growing cities, urban areas become increasingly vulnerable to disasters. Where properly managed, however, cities also represent a critical opportunity to mitigate the damage from natural hazards.

The **Asian Urban Disaster Mitigation Program (AUDMP)** is an eight-year program designed to respond to the need for safer cities. The ultimate goal of the program is to reduce the disaster vulnerability of urban populations, infrastructure, critical facilities, and shelter in targeted cities throughout Asia. The purpose of the program is to:

- establish sustainable public and private sector mechanisms for disaster mitigation that will measurably lessen loss of life, reduce the amount of physical and economic damage, and shorten the post-disaster recovery time; and
- promote replication and adaptation of successful mitigation measures within target countries and throughout the region.

Working in conjunction with collaborating institutions in each target country, the program strategy takes a three-tiered approach:

- 1) **National demonstration projects** in each of the target countries will serve to provide a working example of urban hazard mitigation. In a selected urban area in each country, a hazard or set of hazards will be assessed, followed by the design and implementation of appropriate disaster mitigation measures.
- 2) The **Information and Networking** component aims to help build public and private networks as a forum for exchanging information and experience on urban disaster management, with the goal of replicating successful hazard mitigation practices from the demonstration projects throughout the region.
- 3) The **Training, Resource Materials, and Continuing Education** component provides an opportunity to further institutionalize hazard mitigation practices through seminars for national level decision makers, as well as by using an in-country and regional “train the trainers” approach for passing on technical skills via a core curriculum in hazard assessment and mitigation. Courses will be offered by in-country partner institutions and on a distance learning basis.

### Target Countries & Hazards

#### • **BANGLADESH: Floods**

The Bangladesh project aims to reduce the vulnerability of Tongi, Gaibandha and other urban areas to floods through community and municipality-level mitigation activities.

#### • **CAMBODIA: Floods**

The Cambodia project aims to use a community-based preparedness and mitigation approach to reduce the vulnerability of flood-prone districts – Kampong Cham, Kandal and Prey Veng – in Cambodia.

- **INDIA: *Multiple Hazards***

The overall aim of this project is to evolve an “Ahmedabad City Disaster Mitigation Strategy” as a demonstration project in India to promote the safer city concept by reducing the disaster vulnerability of population, infrastructure and economic assets within the city of Ahmedabad.

- **INDONESIA: *Earthquakes***

In Indonesia, the project strives to reduce the vulnerability of Bandung, West Java to natural disasters, particularly to earthquake hazards. With increasing risk to flood hazard, a multi-hazard approach was taken by the project.

- **LAO PDR: *Fires and Other Urban Emergencies***

The objective of the Lao project is to reduce the vulnerability of the population and built environment of Vientiane to fires and other urban hazards.

- **NEPAL: *Earthquakes***

This project aims to provide assistance to three municipalities of Kathmandu Valley to understand the risk of earthquakes and the vulnerabilities of communities to earthquake hazards. Under the project, an appropriate mitigation plan has been developed and implemented. The project will focus on earthquake risk management initiatives.

- **PHILIPPINES: *Floods***

The objective of the Philippines project is to reduce the vulnerability of two cities to natural hazards: flood mitigation in Naga City and multiple hazards in San Carlos.

- **SRI LANKA: *Multiple Hazards***

The Sri Lanka project aims to assist municipal officials in the urban areas of Ratnapura, Kandy and Nawalapitiya to develop improved tools and skills for development planning. In turn, such planning initiatives are expected to reduce the risk of multiple hazards.

- **THAILAND: *Floods***

The Thailand project aims to assist municipal officials in the regional economic city of Hat Yai to reduce the vulnerability of the city and other urban areas to floods through land use planning and improved disaster management planning.

<b>Recent Achievements and Upcoming Initiatives</b>
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During this reporting period, AUDMP's main focus has been placed on replication and consolidation of mitigation initiatives, which are proved cost effective in the respective country contexts. The program activities continue under replication phase in Bangladesh, Indonesia and Sri Lanka whereas activities under consolidation phase are being carried out in Nepal. The demonstration phase started in Lao PDR and Thailand, respectively have been added to the program. The strategies and proposals for projects in India and Vietnam were reviewed and amended as per the recommendations of the Monitoring Mission and the Core Group.

In respect to new country projects in Lao PDR and Thailand, respectively, many activities are being implemented. A grant agreement to start the Lao PDR project, which focuses on urban fire and road accidents, was signed in June 2002 between AUDMP/ADPC and the National Disaster Management Office, the focal point on disaster management in Lao PDR. Its phase I activities were successfully completed in December 2002. Thailand Urban Disaster Mitigation Project (TUDMP) commenced its phase I activities in October 2002. An MOU signing ceremony between ADPC and the Department of Disaster Prevention and Mitigation (DDPM), the new Thai Government agency responsible for disaster management, took place on 14 February 2003. A seminar on “Thailand's Disaster Management Strategy” was recently held, providing a forum for the participants, which consisted of high-level government officers from different government offices and organizations, to develop a strategic framework for disaster management in Thailand under the newly restructured DDPM.

For ongoing projects in Indonesia and Sri Lanka, activities under replication phase are being carried out. The Indonesian Urban Disaster Mitigation Project (IUDMP) identified the need for and establishment of a Research Center at the Institute of Technology Bandung (ITB) in January 2003 with support from AUDMP in developing the Center's Business Plan. The Sri Lanka Urban Multi-Hazard Disaster Mitigation Project (SLUMDMP) plans to organize the 2<sup>nd</sup> Disaster Safety Day in Ratnapura, one of its demonstration project sites, on 16 March 2003 to coincide with the 8<sup>th</sup> AUDMP Annual Working Group Meeting, co-organized by the Centre for Housing, Planning and Building, SLUMDMP implementing organization.

A proposal for the vulnerability reduction project in Ahmedabad city of Gujarat state of India has been developed in collaboration with Center for Environmental Planning and Research (CEPT). USAID India Mission will be consulted to further refine the proposal to build synergy between ongoing and pipeline activities of the country mission and this proposed project. A project for establishing housing delivery mechanisms for communities living in flood prone areas in Central Vietnam has also been developed and forwarded to the AUDMP Core Group for review. A workshop on Safer Shelter in Vietnam was organized in September 2002 to review, analyze and discuss main issues pertaining to the impact of flood and typhoon on housing in Vietnam.

Although the replication phase of Cambodia and Nepal under AUDMP was completed in November 2001, several activities have been continued through the assistance of non-AUDMP sources. PACT/ Cambodia submitted a proposal for the consolidation phase, which was reviewed by the Core Group during the latest Core Group Meeting in December 2002. In collaboration with the NSET-Nepal, AUDMP has organized the Earthquake Vulnerability Reduction for Cities (EVRC) training course twice in Kathmandu, Nepal—one in May and the second in November 2002 during the 4<sup>th</sup> General Assembly of Asian Seismological Commission. Activities under consolidation phase in Nepal are also being implemented by NSET-Nepal.

One of the major achievements during this reporting period under the Information and Networking component is a Regional Workshop on Best Practices in Disaster Mitigation, which was successfully organized in September 2002 and attended by more than 150 participants from 17 countries all around the world. Development of a Primer on Urban Disaster Mitigation in Asia to share the advances in knowledge and experience in this regard is also underway by AUDMP. A mini-workshop to seek advice on this from a panel of international experts was held in September 2002, following the Regional Workshop. A number of working papers and case studies has been developed to capture the best practices of projects implemented under AUDMP on different themes. As AUDMP's continuous effort to further disseminate information and promote replication, the AUDMP website has been regularly revised and updated.

Under the Training, Resource Materials, and Continuing Education (TRMCE) component, the Urban Disaster Mitigation Curriculum (UDM), the Urban Flood Mitigation (UFM) Curriculum and Curriculum for Technological Hazard Risk Mitigation course for Cities (TRMC) - have been developed and field-tested. It has been transferred to Training and Education Division (TED) of ADPC and TED takes initiatives to conduct them under its regular training calendar. A new course on the Earthquake Vulnerability Reduction for Cities (EVRC) was developed and two courses were successfully conducted during the reporting period. Following the first delivery of EVRC in May 2002, the course curriculum was reviewed by a panel of experts in September 2002. The EVRC-2 was conducted in November 2002 prior to the 4<sup>th</sup> General Assembly of Asian Seismological Commission in Kathmandu, Nepal by ADPC in association with the International Institute for Geoinformation Science and Earth Observation (ITC), the Netherlands, International Centre for Integrated Mountain Development (ICIMOD) and NSET-Nepal. AUDMP is developing a fifth course on Disaster Risk Communication (DRC). The DRC course outline has been developed and development of course content is underway.

The Asian Disaster Mitigation Training Network (ADMIT), which was launched on May 17, 1999, has shown a very slow progress during the reporting period. Six MOUs have been signed between ADPC and six national organizations in four countries, namely India, Nepal, Philippines and Sri Lanka. To date, five courses on Natural Disaster Mitigation (NDM) in Sri Lanka, three courses on Disaster Management in India and three courses on Urban Disaster Mitigation in Lao PDR have been conducted by the NPTIs in the

respective countries. These courses are planned to be integrated into the respective NPTIs' annual regular training calendar.

Another important ongoing initiative under TRMCE is the dialogue to integrate the subject of Urban Disaster Mitigation (UDM) into the curricula of undergraduate/postgraduate courses in Schools of Urban Planning of related academic institutes as a way to sustaining disaster mitigation. Currently, discussions in this connection are underway with 13 planning schools in six AUDMP countries. A workshop on "Institutionalization of Urban Disaster Mitigation" was held by AUDMP in July 2002 in Bangkok, Thailand, bringing about more than 20 academic professionals from countries in Asia and Europe to discuss the strategy in this respect. In this regard, the ADPC and ITC Netherlands will be implementing a joint project with financial support from ECHO. The project is titled as "Sustainable Capacity Building for Urban Disaster Mitigation in Asia using ITC Technologies". The project will start in April this year.

In terms of Monitoring and Evaluation, an external monitoring mission team visited AUDMP country projects to review and assess progress made towards AUDMP's second phase objectives and expected results, document successes and identify areas for improvement. The team also reviewed the information products, dissemination strategy as well as the national and regional courses developed and conducted under AUDMP. At the end of the mission, the team reported that the AUDMP has had an important impact and tangible results in a number of countries in Asia and has been instrumental in helping to bring disaster mitigation a higher profile in the region. It has raised awareness of all stakeholders in disaster mitigation in its project countries. Also, it has developed a number of models and approaches to address disaster mitigation in a variety of situations. According to the team, reviewing the program strategy for the future is recommended to ensure the sustainability of the mitigation concept and to consolidate the achievements of the program. The focus of the program activities in the future years will be to consolidate the achievements of the AUDMP to date.

### **Institutional Involvement**

All divisions of the Asian Disaster Preparedness Center (ADPC) are involved in the design and implementation of the AUDMP, including the Training and Education Division, Partnership Development and Relations Division and the Technical Services Division. An array of other organizations are involved in the program, including NGOs, academic institutions, disaster management organizations, and regional and national governments.

Management of the program was initially performed by the USAID's Regional Urban Development Office for South East Asia (RUDO/SEA) in Jakarta. Currently the program is under management of the RUDO/South Asia in New Delhi, which has been redesignated as Office of the Economic Growth. Implementation by ADPC in Bangkok, Thailand transferred to the new ADPC Foundation upon its establishment in June 1999. Core funding for the AUDMP comes from USAID's Office of Foreign Disaster Assistance (OFDA), and increased support to extend the program from four years to eight has already been approved.

### **Program Accomplishments**

#### **National Demonstration Projects**

National Demonstration projects are implemented in six countries and two additional projects are actively in the design phase. Following is an overview of the projects and a status review.

#### **Bangladesh**

*Overview:* The Disaster Management Unit (DMU) of CARE-Bangladesh is the partnering institution in implementation of Bangladesh urban flood mitigation project. The project is expected to benefit from the experiences and capabilities of CARE Bangladesh through the involvement of number of associated projects implemented in the urban areas of the country. Few such projects are: (i) ongoing flood mitigation program in rural areas; (ii) recent experience in flood relief in urban areas (iii) the ongoing USAID SHAHAR

project targeting urban areas; and (iv) also the expanding role and capacity of the DMU itself. Proposed project activities include activation of municipal disaster management committees, use of participatory rural appraisal (PRA) techniques to assess the level of vulnerability and hazard, mobilization of community resources for reduction of flood impact, and the development of community mitigation plans, preparedness plans and implementation of respective plans as demonstration initiatives.

The BUDMP has successfully implemented demonstration project activities in two urban areas: Tongi, an industrial municipality in the Dhaka metropolitan area surrounded by branch river Turak. ; And Gaibbandha, a northern district town on the banks of the Brahmaputra River and now, the Project is in its Replication Phase.

*Status:* Phase I of the Bangladesh Urban Disaster Mitigation Project (BUDMP) commenced in March 2000 and completed in April 2001. Project partner CARE Bangladesh, has implemented the project activities in association with two local partner NGOs; namely Gana Unnayan Kendra (GUK) for Gaibandha Municipality and Association of Rural Development (ARD) for Tongi Municipality. However, the MOU reached by CARE and ARD had to be deactivated due to reasons outside the project involvement and subsequently the project activities in Tongi were carried out by the Committed Organization for Development Extension Services (CODES) - another local partner NGO. At the end of phase I, BUDMP has helped the communities in the two municipalities to deliver Disaster Mitigation Action Plans and Preparedness plans for respective areas. The other major activities undertaken by the project during phase I, are foundation training for BUDMP staff, baseline survey of households, training of volunteers selected from the communities, risk mapping using PRA tools through a community participatory approach, vulnerability assessment, ranking and prioritization of mitigation solutions.

One of the initial steps of the Bangladesh Urban Disaster Mitigation Program (BUDMP) was reactivation of the Municipal Disaster Management Committees (MDMC) in the above two selected municipalities. The MDMCs now conduct regular committee meetings to discuss the connected issues to reduce the impact of floods. The MDMCs have already approved the mitigation and contingency plans prepared by the communities for the respective municipalities under the project and assisting the communities to implement the mitigation solutions.

During the early stages of phase II, BUDMP has undertaken several activities to create awareness among the vulnerable groups on the implementation of household level mitigation practices and to assist effective social mobilization within the target areas. BUDMP has successfully launched a series of awareness programs, involving teachers and school children from target communities. Project has also imparted training on "Role of Civil Societies in Urban Disaster Management" for the members of civil societies in both municipalities. Training on "Community Based Scheme Maintenance for Urban Flood Mitigation" through courtyard meeting has been organized to facilitate active community participation. A project review workshop was organized in January 2002 between BUDMP and AUDMP to discuss the strategy and methodology for implementation of structural mitigation solutions. Familiarization visits for BUDMP staff have been undertaken for other urban projects implemented by CARE to develop synergy between projects.

One of the tools designed for monitoring and evaluation of the effectiveness of the project is the Steering Committee (SC) meetings. SC is comprised of representatives of Disaster Management Bureau (DMB), USAID mission, AUDMP, CARE-DMU and political leadership of target municipalities. Phase II of BUDMP was completed in December 2002.

BUDMP Replication Phase has commenced in January 2003 and scheduled to be completed by the end of August 2003. Under this Phase, BUDMP expects to replicate the project activities in 5 other flood vulnerable small municipalities namely: Shahjadpur (in Sirajgonj District), Bhuapur (in Tangail District), Goalanda (in Rajbari District), Bhairab (in Kishoregonj District), and Dohar. (in Dhaka District).

The project is planning to have a national workshop on Earthquake vulnerability of Bangladesh in June 2003. It is expected to share the rich experience of Kathmandu Valley Earthquake Risk mitigation Project(KVERMP) at this workshop. Previously, a study tour was also offered for a representative of BUDMP to participate in the Earthquake Safety Day'02 program in Kathmandu.

### **Cambodia**

*Overview:* Many Cambodian communities have proven to be extremely vulnerable to the effects of recurrent flooding, particularly in the eastern part of the country that borders the Mekong River and the northwestern area around Tonle Sap. The goal of the project is to reduce the vulnerability of the population to floods using an integrated, community-based disaster preparedness and mitigation process at the village level. The process addresses the susceptibility of the general population to floods and its shelter, critical facilities, infrastructure, livelihoods, etc. The project targets several communities within three highly flood-prone provinces bordering the Mekong River: Kompong Cham, Prey Veng, and Kandal. The project is managed by PACT-Cambodia and implemented through the association of CRC and IFRC. A Disaster Preparedness Delegate (funded by American Red Cross and stationed at IFRC) has been identified to work with the Cambodian Red Cross in carrying out the project activities in target provinces

*Status:* The successful completion of CBFMP demonstration project activities under phase I & II provided several opportunities to promote and create favorable conditions for replication of project activities in other flood prone provinces. The purpose of the replication phase was to consolidate the demonstration activities and processes piloted under CBFMP. This approach has ensured the widest-possible replication of community-based flood mitigation initiatives in Cambodia through utilization of resources during AUDMP and beyond. The replication phase was expected to consolidate demonstration phase activities in target communities, expansion into other communities living in the urban areas in a contextually different socio-economic set up, and to institutionalize the project activities within the administrative structure of CRC. This approach has enabled replication of the experience in to four other provinces through wide dissemination of experience and the lessons learned in project implementation process.

During the demonstration phases, two rounds of training were conducted for CRC volunteers in the above 3 target provinces. Approximately 150 Red Cross volunteers have been trained under CBFMP and flood mitigation solutions have been implemented through them in 23 communities. During the replication phase, Pact and CRC have jointly conducted two assessments before and after the year 2000 floods. This has allowed an opportunity to record and document the experience of target communities in facing devastating flood events similar to the one experienced in year 2000. The level of involvement of the Red Cross volunteers and the evaluation of the usefulness of their training and support provided to them through the CBFMP to build the flood preparedness capacity of the target communities have also been examined.

This assessment was supplemented through a subsequent "Lessons Learned" survey. The above mentioned project's evaluation mission and "Lessons Learned" survey helped to draw up the positive and negative lessons learned in execution of the project. It was presented at a replication workshop held at the final stages of the project and it also helped to disseminate the project experience to a wider audience. After completion of AUDMP grant extension period, the CRC has executed a follow-up project which enabled them to replicate project activities into four new provinces in Cambodia in addition to initial three target provinces of CBFMP.

The follow-up project is being executed by CRC through funding support from sources other than AUDMP. During the replication phase the CBFMP activities have been institutionalized within CRC administrative setup. AUDMP helped CRC to expand its training division and prepare all training manuals for trainers in order to help them expand the phase activities. At the end of replication phase, CBFMP has published four training manuals to be used for training of CRC volunteers. In addition, upon the request of CRC, TED/ADPC carried out a Training Needs Assessment (TNA) survey during the replication phase. ADPC has taken initiatives to address the needs identified through the TNA in the final stage of the replication phase and further assistance will be made available to CRC for replication of CBFMP activities through other projects implemented by ADPC (such as PDR-SEA funded by the DIPECHO ) beyond the AUDMP extension period.

Core Group members have requested AUDMP to see the possibility to develop a consolidation proposal to consolidate the achievements of the Cambodia's Community-Based Flood Mitigation and Preparedness Project (CBFMP) and work with the Cambodian Red Cross, the Federation and the National Committee for Disaster Management in Cambodia and also to build synergies with other ADPC projects such as the DANIDA-funded Disaster Reduction Program for Cambodia, Lao PDR and Vietnam (DRP-CLV).

## **India**

*Overview:* India is said to be “a land of disasters.” The country is prone to multiple disasters and the frequency of occurrence of disasters has been increasing overtime. Amongst the states of Indian Union, the state of Gujarat has been classified as being highly disaster prone. The state is prone to frequent droughts, cyclones, floods and earthquake disaster. The fire hazards are also frequent. With the large industrial base, that too in the chemical and petro-chemical sector, the vulnerability of the state to the technological disasters is very high. It is needless to say that, with large population and activity concentration, urban areas become major areas of concern.

The rapid pace of the industrialization process that took place during the past five decades in Gujarat is one of the prime factors contributing to urban growth. Since its formation in 1961, Gujarat has emerged as a leading industrial state in the country. A five fold increase in number of working factories and a two and a half fold increase in factory employment have occurred during the last 25 years. Small-scale industries growth has been phenomenal. Large-scale investments are in the anvil. The economy of Gujarat grew at a moderate of 5.83 percent per annum, during 1980-98. Between 1990-91 and 1997-98, however the economy marked a high growth rate of 8.61 percent.

Gujarat is being steadily transformed into a predominant urban society. At the beginning of this century, Gujarat's population was 9.09 Million, of which 22 percent was living in urban areas. The last four decades saw an almost three and a half times increase in urban population of the State from 5.31 million in 1961 to 18.37 million in 2001 accounting for 38 percent of the State population. Over the decades slow down in the rate of growth in population, both in the rural and urban areas have been observed. The share of incremental population going to urban areas has been consistently increasing over the decades. Of the total increment in population during the period 1951-61 a meagre 20 percent went to urban areas. During the subsequent four decades, this share has increased to 36, 42, 51 and 56 percent respectively. With these trends continuing, forecasts suggest that by 2021, 35 million people constituting nearly 46.5 percent of the state population would be residing in urban Gujarat. The city of Ahmedabad with a population of over 4.5 million, is the largest city in the state of Gujarat and accounts for over a quarter of the state's urban population. By 2021, the city is expected to reach a population size of 8 million.

A proposal for the Ahmedabad Disaster Mitigation Project (ADMP) was developed and the project will be based in Ahmedabad with the goal of reducing the multiple disaster vulnerability of population, infrastructure, and economic assets. The proposed project includes seven components namely hazard and vulnerability assessment; promoting safer buildings; school safety program; preparation of mitigation measures; social marketing; replication; and comprehensive disaster mitigation strategy.

*Status:* Issues of avoiding duplications with existing projects and the limitations in time and resources have been discussed among the Core Group members. Further dialogue on the proposal will be made with the USAID-India mission.

## **Indonesia**

*Overview:* Although the City of Bandung in West Java is subject to numerous natural hazards, it is considered to be especially high risk to earthquake. Not only does the city sit on sedimentary soils close to an active fault, but it also has the highest population density of any urban area in Indonesia. The objective of the Indonesia Urban Disaster Mitigation Project (IUDMP) is to reduce the vulnerability of the city of Bandung to natural disasters. The project focuses on reducing the susceptibility of the urban population, infrastructure, critical facilities, and shelter to natural disasters, particularly to earthquake hazards. The first phase consists of hazard mapping and vulnerability assessment of the city. During the second phase,

mitigation strategies are developed and implemented. Lessons learned from the first and second phases are applied in the replication phase.

Activities include the review of the Bandung Spatial Planning and Local Building Regulation with regard to seismic safety; the preparation of technical guidelines for implementation by the Municipality of Bandung; the development and implementation of a monitoring system; the development of an emergency response mechanism and the shift from a single hazard to a multi hazard mitigation process. Other activities include public awareness campaigns, networking and training.

*Status:* The Indonesian Urban Disaster Mitigation Project (IUDMP) has successfully completed the demonstration phase I and II and the replication phase.

During the demonstration phase, seismic risk assessment and vulnerability and damage assessment were conducted for the Bandung Municipality. Based on the assessment, a series of mitigation measures were developed and implemented. These include review and update of the Bandung Spatial Planning and Local Building Regulation with regard to seismic safety; development and implementation of a monitoring system; preparation of technical guidelines for implementation by the Municipality of Bandung; provision of guidelines for development of a city emergency response mechanism, training of related staff; public awareness campaign targeted at journalists and school children; organization of national policy workshops; and development of national policy for urban disaster mitigation.

The project has also incorporated a multi-hazard approach, expanding into mitigation for La Nina-related disasters in the Bandung Basin. The project team worked in coordination with the Municipality of Bandung and the Regency of Bandung for the collection of data and information to prepare flood and landslide hazard maps as well as in disseminating new information to the public. The project has developed a sophisticated networking tool, KOMPAK, to further collaboration among urban disaster mitigation organizations in Indonesia and beyond. The KOMPAK website is: <http://www.kompak.or.id/>, which continues to be updated.

During the replication phase, the experience and successes in Bandung were disseminated to other high seismic risk cities throughout Indonesia through a lessons learned workshop and through assistance in rapid risk assessment and technical advice. IUDMP was successful in leveraging contribution from over 29 cities for the lessons learned workshop and seven cities showed interest in working with IUDMP for rapid risk assessment. However, due to budget and time limitation, only four cities, namely Denpasar, Palu, Manado, and Bangulu, completed the rapid risk assessment by the end of the replication phase.

To promote safer building construction, IUDMP worked with the City of Bengkulu in training of Bengkulu communities and officials in better building construction techniques, better preparedness, and response strategies, since the city experienced a number of earthquake disasters.

The Project has also worked with the Ministry of National Education to institutionalize school earthquake preparedness and public awareness into the education system. A training program for over 60 school teachers has been held with the objectives of enabling teachers to convey/teach earthquake education materials to students and using the manuals developed under the Project in the "learning and teaching" process on earthquake school safety. USAID/Jakarta and the Ministry of National Education provided great support to the training and have planned to support two more batches of training beyond IUDMP to cover participants from all the earthquake prone cities.

At the end of the replication phase, ITB has established a Research Group on Disaster Mitigation at the Institute for Research and Community Empowerment of ITB to continue and further promote disaster mitigation in Indonesia.



## **Lao PDR**

*Overview:* Fires have been identified as the largest cause of loss of life and property in the capital city of Vientiane. The objective of the Laos project is to reduce the vulnerability of the Vientiane population and built environment to fires and related man-made urban hazards. To accomplish this, the project will focus on building capacity for prevention and response within the city's emergency service departments, establishing a community outreach program, and improving the regulatory environment and incentive system for fire mitigation and accident prevention. The lead institution is the National Disaster Management Office (NDMO) in collaboration with Urban Research Institute (URI), key government ministries and Vientiane municipal officials.

*Status:* The Project is in the demonstration phase 2. The phase 1 implementation started on July 1, 2002 and completed on December 31, 2002. A Vientiane Fire Risk Map was produced covering 100 communities in four urban districts of Vientiane and a pilot community was selected for fire risk assessment and risk reduction planning using a community-based approach. Two Stakeholders Workshops were held; one was to introduce the Project to the Vientiane Community and solicit their support and the other was to solicit input for development of mitigation measures, which was the basis for the Phase 2 proposal. A project overview brochure was produced in English and Lao to inform the public about the Project. In addition, a six-day training course on urban disaster mitigation was organized for municipal officials and town planners.

The second phase of LUDMP started in January 2003. A baseline data survey has been initiated to establish the baseline for fire and road safety, so that project impact can be measured at the end of the Project. Since most communities have narrow roads and therefore there is problem in accessibility of fire engines in the event of fires, volunteer groups have been established in eight communities in Vientiane as pilot communities. The volunteers were trained in fire prevention, preparedness, response and rescue in a two-day training course organized by the Fire Brigade. In addition to building community resilience, capacity building for the Fire Brigade and public awareness on fire and road safety will be the main activities under Phase 2.

## **Nepal**

*Overview:* Nepal has a long history of destructive earthquakes. With a burgeoning population of almost a million people, uncontrolled development, and building construction techniques that have changed little in the past century, Kathmandu Valley becomes increasingly vulnerable to catastrophic earthquakes with each passing year. The objective of the project is to reduce the earthquake vulnerability of Kathmandu Valley. The project has four main components: 1) Scenario and Action Plan; 2) School Earthquake Safety; 3) Public Awareness; and 4) Institution Building and Training. The Scenario and Action Plan component involves putting information on earthquake risk and consequences in a form that is understandable to public officials and citizens, information gathering from operators of critical facilities, presentation of a likely earthquake scenario to public and private decision-makers, and generation of an action plan. The School Earthquake Safety component establishes an Advisory Sub-Committee on school safety, design earthquake preparedness curriculum, conduct a participatory evaluation of the vulnerability of schools, and produce proposals for retrofitting the buildings most at-risk. The Public Awareness component combines public outreach in the form of various information pieces and public talks. The highlight of the project so far has been the establishment and commemoration of the annual Kathmandu Valley Earthquake Safety Day on the anniversary of the devastating earthquake in 1934. The Institution Building and Training component has helped to build the capacity of NSET-Nepal to become a self-sustaining multi-disciplinary professional society capable of handling various aspects of earthquake risk management process within Nepal.

*Status:* The project replication phase ended in November 2001 and project partner has entered the MOU with ADPC for continued professional association beyond the grant period of AUDMP. Therefore, the AUDMP/ADPC assistance to NSET continues to carry out activities undertaken by KVERMP during the reporting period.

Under the Earthquake Scenario and Action Plan component, the Kathmandu Valley Earthquake Scenario and Earthquake Risk Management Action Plan have been developed, published and distributed in both Nepali and English. Replication of the whole process of KVERMP requires the continuation beyond the

AUDMP in order to achieve the larger goals aimed at Kathmandu Valley Earthquake Risk Reduction. The project partner received the financial assistance from OFDA for continuation of KVERMP activities through a new project called Action Plan Implementation Project (APIP) since year 2001. The cooperation between NSET and AUDMP/ADPC will continue further in the light of implementation of APIP.

The School Earthquake Safety component, which started as a component of AUDMP, is continuing and 12 schools have been retrofitted to date. The project has established School Earthquake Safety Advisory Committees, drawn from the education system in the Valley, the Ministry of Education, NGOs and INGOs, municipalities and NSET-Nepal to facilitate the continuation of the activities into other areas within Kathmandu valley. The system for school retrofitting has been established, field-tested under AUDMP and it will be further developed as a component under APIP. Vulnerability assessments of school buildings have been conducted and the survey and conceptual retrofit design of 10 different building typologies have been completed under AUDMP. Survey results will be published under APIP. The masons trained in the school retrofit program serve as trainers for the other masons within the valley. The methodology is considered as a very successful way to promote appropriate construction techniques for non-engineered construction. It has become a common feature to introduce earthquake resistant elements in almost all the new constructions of dwelling houses undertaken by the trained masons.

Royal Nepal Government (RNG) has recognized National Program on Earthquake Safety Day (ESD), as an annual event and will continue to organize ESD in association with NSET in January every year. Earthquake awareness procession through the city, earthquake safety day's national meeting and exhibition are some of the highlights of the Earthquake Safety day national program. Many government and private institutions participated in the exhibition. This year, AUDMP sponsored staffs of BUDMP and India to participate in this occasion. Demonstration of the effectiveness of retrofitted construction has become a popular feature of the exhibition organized under ESD program. In such demonstrations 1:10 scale models of the school buildings were tested on a shaking table in order to create awareness on the impact of earthquakes to building safety. Workshop on the experiences of natural disaster/earthquake risk management, which was organized to coincide with the national event, provided a forum for professionals to discuss various aspects of risk management. Similar workshops on earthquake vulnerability reduction are expected to organize in Bangladesh and India soon.

The project has realized the importance of effective awareness creation on all aspects of risk reduction measures with analyses from social, economic and technical viewpoints. The project's staffs conducted seminars, workshops and participated in various meetings to raise earthquake hazards awareness and to introduce ways for vulnerability reduction. In order to increase public awareness, NSET-Nepal has produced numerous information products aimed at increasing awareness on seismic risk and preparedness. These products include posters, fliers with construction tips, newspaper articles and television and radio programs. The calendar annually published by NSET with the financial assistance of municipalities and private sectors is one of the effective awareness-creating materials produced under the project.

The very successful community-based initiative in the ward 34 of the Kathmandu municipality is being carried on further. It not only helps create a greater awareness, it also facilitates active participation of communities in implementation of preparedness activities such as hazard mapping and preparation of database on the community capacities etc.

In the replication phase the project partner has carried out environmental mapping and risk assessment in the Dharan municipality area funded by RUDO/USAID. During the replication phase NSET has established partnerships with professional societies within the Dharan and Pokhara valleys and created greater understanding for continuation of implementation of programs similar to KVERMP in the future. The Institution of Engineers (IOE) in association with NSET has conducted the first national level training program on Urban Disaster Mitigation and IOE expects to take up this course as a module in the regular post graduate diploma course program.

Since January 2003 the Project has entered into its Consolidation phase. NSET is in the process of disseminating the success of KVERMP in to 3 other municipalities namely, Pokhara (around 200 Km away

from Kathmandu), Vyas (around 150 Km away from Kathmandu) and Banepa (around 40 Km away from Kathmandu). The consolidation Phase has been scheduled to complete by the end of July 2003.

### **Philippines**

*Overview:* Many natural hazard, including cyclones, floods, and earthquakes, seriously threaten urban areas of the Philippines. The objective of the Philippines project is to reduce vulnerability to natural hazards in two cities, beginning with flood mitigation in Naga City and followed by multiple hazard mitigation in San Carlos. In addition to hazard mapping and mitigation planning, the project emphasizes land use planning, the formation of disaster management standards, and the training of urban professionals. A Cascade City component promotes the replication of lessons learned to other Philippine municipalities. The lead project institutions are the League of Cities of the Philippines (LCP) and the Philippine Business for Social Progress (PBSP).

*Status:* Philippine Cities Disaster Mitigation Project (PCDMP) in Naga City and San Carlos city was completed in August 1999. Since then both cities have established disaster management units in the city administration. These units are functioning very effectively. Naga city has successfully implemented some of the priority actions listed in the disaster management plan developed under the project. This included landuse planning initiatives and structural solutions to reduce the impact of floods. The city administration of Naga city has identified the necessity to strengthen the household and community level preparedness to enhance the effectiveness of some of the initiatives undertaken by the city administration. AUDMP is in the process of designing a new project phase taking into consideration of the issues recommended by the city administration. The project identifies the need for initiatives to share the experience of two cities and disseminate the best practices and lessons learned from the project to a wider audience, mainly to other cities facing similar problems. It will be included as one of the components of the next phase of the project.

### **Sri Lanka**

*Overview:* Urbanizing areas in Sri Lanka are often vulnerable to a number of hazards. The town of Ratnapura is an urban growth center subject to landslides, frequent flooding, erosion, pollution and contamination of water supplies, subsidence, and other hazards. The objective of the Sri Lanka project is to reduce the vulnerability of Ratnapura to such hazards. The project identifies hazards and selects appropriate strategies to avoid or reduce hazard-related losses. In this way, the project assists municipal officials to develop improved tools and skills for development planning and risk management. Two "replicating cities" Nawalapitiya and Kandy are involved in the second phase. The project has three major components: Multi-Hazard Mapping, Training, and Networking/Policy Development. Phase 1 of the Multi-Hazard component focused on multi-hazard mapping, vulnerability and risk assessment, and generation of mitigation options. Phase 2 involves the selection of appropriate mitigation strategies and implementation of them through a municipal action plan, land use guidelines, and public awareness campaigns. The replication phase replicates the successes from the demonstration phase to Colombo and cities along the Kelani River.

*Status:* The project is completing its replication phase at the end of March 2003. A disaster safety day will be organized in Ratnapura as the concluding event for this phase.

Under the demonstration phase, multi-hazard mapping and risk assessment for Ratnapura, Nawalapitiya and Kandy were conducted. Urban land use plans were developed for the three cities and a methodology was established for integration of natural disaster risk information in urban physical planning process and built capacity.

The project adapted the urban disaster mitigation training curriculum from AUDMP regional course and has conducted three in-country training courses for government officials. Capacity building was also extended to craftsmen and technical officers attached to local authorities. Guidelines for construction in disaster prone areas were developed in addition to the disaster mitigation action plan for Ratnapura and Nawalapitiya. A disaster management plan was prepared for Ratnapura.

Information products in the form of video, art exhibition, posters, newsletter were generated to raise public awareness. A web site has also been developed to disseminate project information. The web site is at <http://www.chpb.gov.lk>.

Building on the experiences of the demonstration phase, the Project worked with Colombo Municipal Corporation, Sabaragamuwa Province, and cities along the Kelani River to replicate flood mapping, public awareness and training.

SLUMDMP undertook a flood mapping exercise that has proved useful to the Colombo Municipal Corporation (CMC) in its public awareness campaigns. The maps clearly show the areas that are likely to be subject to severe flooding in the absence of structural mitigation and preparedness measures. SLUMDMP also worked with the CMC in the preparation of an Emergency Management and Response Plan (EMRP).

A number of awareness workshops were organized for political leaders, government officials and NGOs in the Kelani River belt, Central Province, Western Province, and Colombo. Consequently, an action plan for Kelani River Flood Protection was developed and integrated with the National Program on Clean Rivers implemented by the Ministry of Forestry and Environment. The existing Environment Steering Committees established in the local authorities were suggested to integrate disaster mitigation and named "Environment and Disaster Mitigation Steering Committees (EDMSC) to be monitored by the Ministry. A generic disaster management plan was developed for the Kelani River Flood Mitigation.

To raise public awareness, a disaster safety day was initiated in Ratnapura in April 2000. This will be replicated in Nawalapitiya and other cities. In addition, SLUMDMP publications have been permanently displayed at the Earth Science Museum of Bio Diversity Complex in Kandy since May 2001. Five videos showcasing the Project and advocating for disaster mitigation have been produced and disseminated.

SLUMDMP has completed and submitted to the Sabaragamuwa Provincial Council a draft proposal to include disaster management aspect in the proposed Provincial Statute to establish Provincial Environment Authority for Sabaragamuwa Province. Concurrently, the Project has worked with the National Physical Planning Council to integrate natural disaster mitigation aspect in the activities of the Natural Physical Planning Department.

Capacity building in disaster management and mitigation continued to be a strong component under SLUMDMP. A training for craftsmen was held in Nawalapitiya, a training course on guidelines for construction in disaster prone areas was held in Kandy, and a national course on community based disaster management was organized in partnership with ITDG South Asia and ADPC.

SLUMDMP also worked with Faculty of Architecture of Moratuwa University and Geography Department of University of Ruhuna to integrate natural disaster mitigation in university courses. Both universities have developed the outline curricula for modules for integration.

### **Thailand**

*Overview:* In order to facilitate uninterrupted economic and social growth of Thailand's urban centers, effective vulnerability assessment and mitigation tools are needed at the regional, local government and community levels. The tools will allow decision makers of local administration and other key stakeholders to consider mitigation strategies as a part of normal development process. Thailand Urban Disaster Mitigation Project (TUDMP) aims to introduce systematic and scientific methodology to evaluate potential hazards, estimate potential losses and develop mechanisms to carry out action planning and implement appropriate measures that will reduce the vulnerability of population in urban areas.

*Status:* The Thailand Urban Disaster Mitigation Project started its Hat Yai Demonstration Project on November 1, 2002. Prince of Songkla University, the grantee of the Hat Yai component, is conducting flood hazard and vulnerability assessment. An orientation meeting will be held for the Hat Yai Disaster Management Committee, stakeholder institutions/organizations/ and other relevant sectors in Hat Yai. TUDMP has also planned to organise a Seminar on Thailand's Disaster Management Strategy for

Governors, high-ranking officials, NGOs, pertinent MPs and Senators. A Training Course on Community-based Flood Management (CBFM) is being developed for government officials of the Department of Disaster Prevention and Relief Operations.

## **Information and Networking**

### **Information and Networking Summary**

The Information and Networking component can be sub-divided into three sections: (a) Information Products; (b) Networking; and (c) Disaster Risk Communication. Since the 7<sup>th</sup> Working Group Meeting in Bandung during 19-21 March 2002, there have been significant achievements till date.

The information and networking strategy focuses on capturing successful examples, practices and processes emerging from implementation of national demonstration projects and packaging these in a variety of media for wider dissemination to different groups interested in disaster mitigation. A range of information products have been developed including three more Safer Cities case studies, two more workshop proceedings and one new video. The Primer on Disaster Mitigation in Asia is being developed that will incorporate existing information products including the process documentation, case studies, working papers, the urban disaster mitigation bibliography and networking guide. Moreover, in an effort to increase the accessibility of information on disaster mitigation, a monthly electronic newsletter – Disaster Mitigation in Asia – was launched in February 2003.

The focus is also on strengthening and institutionalizing networks and partnerships built during the implementation of national demonstration projects. Two major workshops held during 2002 – the Regional Workshop on Best Practices in Disaster Mitigation and the Regional Policy Workshop – proved a major success.

Based on increasing demand from partners for effective public awareness promotion and as recommended by the USAID monitoring mission in October / November 2002, a systematic approach for disaster risk communication and promoting awareness has been included as a new focus under the information and networking component. A set of Disaster Risk Communication generic guidelines for implementation of such programs in AUDMP partner countries has been developed and will be presented and discussed at the 8<sup>th</sup> Annual Working Group Meeting in Colombo, Sri Lanka.

## **Training, Resource Materials and Continuing Education**

The Training, Resource Materials, and Continuing Education (TRMCE) component of the AUDMP has three sub-components which are being implemented.

For the Training component, the Regional Training accomplishments include the conduct of Flood Risk Management-3, and two special courses on Rural Flood Risk Management and Urban Flood Risk Management for the ASEAN countries during last year. Also 2 courses on Earthquake Vulnerability Reduction have been held in Katmandu. The third will be held in Dhaka in June this 2003. National Training includes conduct of courses by partners in India and Sri Lanka. One major highlight was the development of course manual in Laotian and conduct of the third (first AUDMP funded) course in Lao in December.

Resource Materials development includes the development of curricula for EVRC course. The designing of curriculum on Disaster Risk Communications Course is underway. The syllabus of the Technological Risk Mitigation Course is also being revised. At the national level a special course on Land use Planning for Risk Based Mitigation Approaches is being designed for Lao PDR. BUDMP training manuals are being revised by CARE and APDC in order to incorporate the project experience into them. NSET and AUDMP team will be working to design two courses in Nepal during the period from March- August.

The AUDMP has prepared a proposal to be submitted to Swinbourne University of Australia for accreditation of the EVRC, FRM, TRMC and DRC courses. The Swinburne Curriculum Review Committee will review the course syllabus and upon their satisfaction, they will accredit the relevant courses for registration in university's Diploma and Certificate Courses. A project titled "Sustainable Capacity building on Urban Disaster Mitigation in Asia through using IT & C tools" has been approved by ECHO. ADPC and ITC Netherlands will work with selected partner universities to offer distance learning courses on urban disaster mitigation. This one year project will initiate in April 2003.

### **For Additional Information**

For additional information about the AUDMP, please contact: Acting Program Manager, N.M.S.I. Arambepola; Project Manager, Ms. Suthira Suwanarpa/Mr. G.A.P. Ganepola; or Networking Manager, Mr. Rajesh Sharma, Information Manager, Ms. Christine Apikul at tel: (66 2) 516-5900 to 10 or fax: (66 2) 524-5350/ 524-5360; [audmp@adpc.net](mailto:audmp@adpc.net); AUDMP c/o Asian Disaster Preparedness Center, Asian Institute of Technology, P.O. Box 4 Klong Luang, Pathumthani 12120, THAILAND.